REMARKS/ARGUMENTS

Status of the Application

Prior to the entry of this amendment, claims 1-19 were pending in this application. The Office Action rejected the following claims:

Claims 1-3 and 7-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,812,068 to Wisler *et al.* ("Wisler");

Claims 4,5, 13 and 15-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of European Patent Application No. 0551134 to Jogi *et al.* ("Jogi");

Claims 6 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of U.S. Patent No. 4,216,536 to More ("More"); and

Claims 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of Jogi and U.S. Patent No. 6,382,331 to Pinckard ("Pinckard").

In this amendment, claims 10 and 11 are amended. Applicant respectfully requests reconsideration of this application in light of the remarks/arguments presented below.

35 U.S.C. §102(a) Rejection

The Office Action rejected independent claim 1 under 35 U.S.C. §103(a) as being unpatentable over the Wisler reference. Additionally, the Office Action builds upon this Section 103 rejection of independent claim 1 using several other references to find that the claims depending from independent claim 1 are also unpatentable under Section 103. Applicant respectfully traverses these rejections.

Independent claim 1 includes the limitations of a downhole processor calculating a statistical relationship between a first and a second downhole parameter and then communicating this statistical relationship from a downhole location to the surface for analysis/processing to determine downhole conditions. As noted in the Office Action,

the Wisler reference does not teach calculating a statistical relationship between two downhole parameters at a downhole location and then communicating this relationship to the surface. Not only does the Wisler reference not teach all of the limitations of the present invention, it also contains absolutely no suggestion of and provides no motivation for calculating a statistical relationship between different downhole parameters at a downhole location and then transmitting this calculated statistical; relationship to the surface. In fact, to the contrary, rather than teaching a method of communicating statistical relationship data between two parameters to the surface for a multi-channel data envelope to be generated at the surface with relatively little data transmitted from downhole, as provided in the present invention, Wisler discloses a method for analyzing parameters downhole and transmitting "answers" to the surface. (Wisler col. 5, ll. 47-63).

Consequently, Wisler, as noted in the Office Action, does not teach or suggest all of the elements of independent claim 1 and, in fact, discloses a dissimilar method that provides for downhole analysis and communication of the processed analysis to the surface and teaches away from the present invention's transmission of data to the surface for surface analysis. Furthermore, the Office Action does not address the deficiencies of the Wisler reference by providing a reference that teaches or suggests calculating a statistical relationship between a first and a second downhole parameter at a downhole location and then communicating this statistical relationship to the surface for analysis.

Applicants respectfully submit that it would not be obvious to one of ordinary skill in the art to modify Wisler to provide for calculating statistical relationships between downhole parameters and communicating this statistical relationship to the surface. As noted above, Wisler concerns sending "answers" from a downhole location to the surface. Therefore, Wisler would tend to teach away from the present invention in that Wisler teaches a downhole analysis methods, whereas the present invention concern sending raw data, albeit compressed raw data in the form of statistical relationships, to the surface for surface analysis. As such, at a

minimum, the two methods require far different downhole processing capabilities, *etc.* As such, it would not be obvious to modify the Wisler method in the manner suggested.

Additionally, the Wisler reference does not teach or suggest that statistical relationships between different downhole parameters may be something that it is worthwhile calculating and transmitting to the surface. Neither does the Office Action provide any reference that teaches or suggests that statistical relationships between different parameters may provide useful data or data that a person of ordinary skill in the art may want to calculate and then send to the surface or that may be processed into something useful/meaningful at the surface. Consequently, a person of ordinary skill in the art when viewing Wisler would have no motivation to modify Wisler in the manner suggested in the Office Action.

Furthermore, the limited data transmission rates through a wellbore associated with measurements-while-drilling have been in existence since drilling for hydrocarbons began. As such, there has been a long felt need for improved methods/techniques for transmission of downhole data to the surface. However, even with this long felt need, none of the persons of skill in the art have disclosed, developed or suggested calculating statistical relationships between downhole parameters at a downhole location and then communicating this calculated relationship to the surface for analysis.

As observed above, the Office Action provides no reference that discloses forming unified data from different downhole parameters, let alone one that teaches how/why downhole parameters may be statistical related. Moreover, as noted in the specification, a person of skill in the art, absent the present patent application, may not consider calculating statistical relationships between downhole parameters and then communicating this statistical relationship to the surface a successful way of handling downhole data because this requires an appreciation that it is possible to capture information on the quantitative relationship between multiple channels at frequencies in excess of the sampling rate. These factors provide that, without impermissible hindsight based upon the present patent application, the invention of independent claim 1 would not be obvious to a person of ordinary skill in the art.

Since all of the limitations of independent claim 1 are not taught in Wisler, and because the limitations of independent claim 1 that are not disclosed in or suggested by Wisler

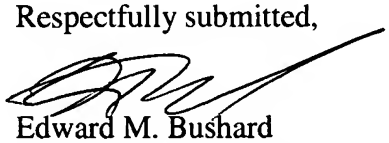
are not obvious, Applicant respectfully submits that independent claim 1 is patentable over Wisler. Therefore, it is respectfully requested that the section 103 rejections of independent claim 1 and dependent claims 2-19 be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

In the event that a fee or refund is due in connection with this Amendment, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No 19-0615. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (617) 252-4732.

Respectfully submitted,



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Date: November 17, 2006

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